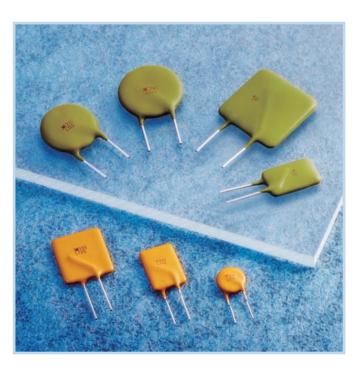


# PolySwitch Resettable Devices Line-Voltage-Rated Devices

PolySwitch LVR devices help protect electric motors and transformers used in commercial and home appliances from damage caused by mechanical overloads, overheating, stall, lost neutral and other potentially harmful conditions.

The LVR line-voltage product line of polymeric positive temperature coefficient (PPTC) devices includes components that are rated for line voltages of  $120V_{AC}$  and  $240V_{AC}$ , for up to 2A of operating current at  $20^{\circ}C$ . They help protect against damage caused by both overcurrent surges and overtemperature faults, offer low resistance, and are compatibly sized with fuse solutions.

Unlike traditional fuses, PolySwitch devices do not require replacement after a fault event. After power has been removed and the overcurrent condition eliminated, the circuit is restored to normal operating condition. Compared to bimetal breakers, they offer greater flexibility, longer lifespan, and lower electromagnetic interference (EMI).



The PolySwitch LVR devices' resettable functionality and latching attributes make them a reliable, cost-effective circuit protection solution for both intermittent- and continuous-operation motor applications. Their low resistance, fast time-to-trip, and low profile help circuit designers provide a safe and dependable product, comply with regulatory agency requirements, and reduce warranty repair costs.

LVR/LVRL series are suitable for line-voltage applications up to a continuous operating voltage of  $240V_{AC}/120V_{AC}$ . RoHS versions of all products are available.

### **Benefits**

- Many product choices give engineers more design flexibility
- Compatible with high-volume electronics assembly
- Assist in meeting regulatory requirements
- Higher voltage ratings allow use in new applications

### **Features**

- RoHS compliant
- Broadest range of radial-leaded resettable devices available in the industry
- Current ratings from 50mA to 2A
- $\bullet$  Line voltage rating of 120V<sub>AC</sub> and 240V<sub>AC</sub>
- Agency recognition : UL, CSA, TÜV
- · Fast time-to-trip
- · Low resistance

### **Applications**

- Electromagnetic loads
- · Game machines
- Industrial controls
- Lighting ballast
- Loudspeakers

- Medical equipment
- Motors, fans and blowers
- POS equipment
- Satellite video receivers
- · Security and fire alarm systems
- Test and measurement equipment
- Transformers
- USB hubs, ports and peripherals



# Table L1 Product Series - Current Rating, Voltage Rating / Typical Resistance for LVR Devices

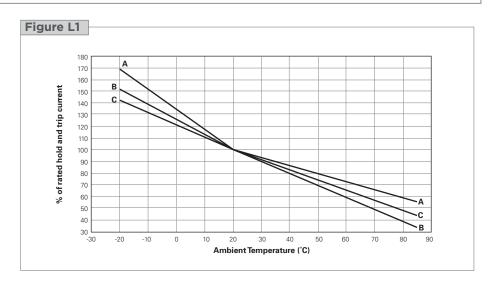
| Voltage Rating   | LVR<br>240V <sub>AC</sub> / 120V <sub>AC</sub> | LVRL<br>120V <sub>AC</sub> |  |
|------------------|--|----------------------------|--|
| Hold Current (A) |  |                            |  |
| 0.050            | 25.00Ω   | _                          |  |
| 0.080            | 9.800Ω   | _                          |  |
| 0.120            | 4.800Ω   | _                          |  |
| 0.160            | $3.400\Omega$                                  | _                          |  |
| 0.250            | 1.700Ω   | _                          |  |
| 0.330            | 1.000Ω   | _                          |  |
| 0.400            | Ω008.0   | _                          |  |
| 0.550            | 0.590Ω   | _                          |  |
| 0.750            | 0.400Ω   | 0.325Ω                     |  |
| 1.000            | $0.276\Omega$                                  | $0.224\Omega$              |  |
| 1.250            | 0.209Ω   | 0.148Ω                     |  |
| 1.350            | _  | 0.138Ω                     |  |
| 2.000            | 0.110Ω   | $0.097\Omega$              |  |

# Table L2 Thermal Derating for LVR Devices [Hold Current (A) at Ambient Temperature (°C)]

|             | Maximu | m Ambient Te | mperature |      |      |      |      |      |      |  |
|-------------|--------|--------------|-----------|------|------|------|------|------|------|--|
| Part Number | -20°C  | 0°C          | 20°C      | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |  |
| LVR/LVRL    |        |              |           |      |      |      |      |      |      |  |
| LVR005N     | 0.08   | 0.06         | 0.05      | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.02 |  |
| LVR008N     | 0.12   | 0.10         | 0.08      | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 |  |
| LVR012      | 0.18   | 0.15         | 0.12      | 0.12 | 0.10 | 0.09 | 0.07 | 0.06 | 0.04 |  |
| LVR016      | 0.24   | 0.20         | 0.16      | 0.16 | 0.13 | 0.11 | 0.10 | 0.08 | 0.05 |  |
| LVR025      | 0.38   | 0.32         | 0.25      | 0.25 | 0.21 | 0.18 | 0.15 | 0.13 | 0.09 |  |
| LVR033      | 0.50   | 0.42         | 0.33      | 0.33 | 0.27 | 0.23 | 0.20 | 0.17 | 0.11 |  |
| LVR040      | 0.61   | 0.51         | 0.40      | 0.40 | 0.33 | 0.28 | 0.24 | 0.20 | 0.14 |  |
| LVR055      | 0.80   | 0.68         | 0.55      | 0.54 | 0.46 | 0.40 | 0.35 | 0.29 | 0.22 |  |
| LVR075      | 1.23   | 0.98         | 0.75      | 0.74 | 0.60 | 0.56 | 0.49 | 0.45 | 0.41 |  |
| LVR100      | 1.65   | 1.30         | 1.00      | 0.94 | 0.80 | 0.75 | 0.65 | 0.60 | 0.55 |  |
| LVR125      | 2.06   | 1.63         | 1.25      | 1.20 | 1.00 | 0.94 | 0.81 | 0.75 | 0.69 |  |
| LVR200      | 3.30   | 2.60         | 2.00      | 1.97 | 1.60 | 1.50 | 1.30 | 1.20 | 1.10 |  |
| LVRL075     | 1.08   | 0.93         | 0.75      | 0.74 | 0.64 | 0.57 | 0.51 | 0.44 | 0.35 |  |
| LVRL100     | 1.40   | 1.19         | 1.00      | 0.94 | 0.82 | 0.73 | 0.65 | 0.57 | 0.45 |  |
| LVRL125     | 1.80   | 1.53         | 1.25      | 1.20 | 1.04 | 0.94 | 0.83 | 0.73 | 0.60 |  |
| LVRL135     | 2.00   | 1.65         | 1.35      | 1.29 | 1.12 | 1.01 | 0.90 | 0.78 | 0.65 |  |
| LVRL200     | 3.05   | 2.55         | 2.00      | 1.97 | 1.72 | 1.55 | 1.39 | 1.22 | 0.98 |  |

## Figure L1 Thermal Derating Curve for LVR Devices

A = LVR075-LVR200 B = LVRL075-LVRL200 C = LVR005N-LVR055





# Table L3 Electrical Characteristics for LVR Devices\*

|           |                |       | V <sub>M</sub>     | AX <sup>†</sup>    | I <sub>MAX</sub> † |            |       |            |           |           |                   |                 |
|-----------|----------------|-------|--------------------|--------------------|--------------------|------------|-------|------------|-----------|-----------|-------------------|-----------------|
| Part      | I <sub>H</sub> | $I_T$ | Operating          | Interrupt          | Interrupt          | $P_{DTyp}$ |       | ne-to-trip | $R_{MIN}$ | $R_{MAX}$ | R <sub>1MAX</sub> | Lead Size       |
| Number    | (A)            | (A)   | (V <sub>AC</sub> ) | (V <sub>AC</sub> ) | (A)                | (W)        | (A)   | (s)        | (Ω)       | (Ω)       | (Ω)               | [mm (AWG)]      |
| LVR/LVRL  |                |       |                    |                    |                    |            |       |            |           |           |                   |                 |
| LVR005NK  | 0.05           | 0.12  | 240<br>120         | 265<br>135         | 1.0<br>20.0        | 0.9        | 0.25  | 10.0       | 18.500    | 31.000    | 65.000            | [0.51mm(24)]    |
|           |                |       | 240                | 265                | 1.0                |            |       |            |           |           |                   |                 |
| LVR005NS  | 0.05           | 0.12  | 120                | 135                | 20.0               | 0.9        | 0.25  | 10.0       | 18.500    | 31.000    | 65.000            | [0.51mm(24)]    |
|           |                |       | 240                | 265                | 1.2                |            |       |            |           |           |                   |                 |
| LVR008NK  | 0.08           | 0.19  | 120                | 135                | 20.0               | 0.9        | 0.40  | 10.0       | 7.400     | 12.000    | 26.000            | [0.51mm(24)]    |
|           |                |       | 240                | 265                | 1.2                |            | 0.40  | 100        | <b>-</b>  | 10.000    |                   | 10.54 (0.4)     |
| LVR008NS  | 0.08           | 0.19  | 120                | 135                | 20.0               | 0.9        | 0.40  | 10.0       | 7.400     | 12.000    | 26.000            | [0.51mm(24)]    |
| LV/D040K  | 0.40           | 0.00  | 240                | 265                | 1.2                | 4.0        | 0.00  | 45.0       | 0.000     | 0.500     | 40.000            | 10.54 (0.4)     |
| LVR012K   | 0.12           | 0.30  | 120                | 135                | 20.0               | 1.0        | 0.60  | 15.0       | 3.000     | 6.500     | 12.000            | [0.51mm(24)]    |
| LVR012S   | 0.12           | 0.30  | 240                | 265                | 1.2                | 1.0        | 0.60  | 15.0       | 3.000     | 6.500     | 12.000            | [0.51mm(24)]    |
| LVIIO123  | 0.12           | 0.30  | 120                | 135                | 20.0               | 1.0        | 0.00  | 15.0       | 3.000     | 0.500     | 12.000            | [0.5111111(24)] |
| LVR016K   | 0.16           | 0.37  | 240                | 265                | 2.0                | 1.4        | 0.80  | 15.0       | 2.500     | 4.100     | 7.800             | [0.51mm(24)]    |
|           | 0.10           | 0.07  | 120                | 135                | 20.0               |            | 0.00  | 10.0       | 2.000     | 1.100     | 7.000             | [0.0111111(21)] |
| LVR016S   | 0.16           | 0.37  | 240                | 265                | 2.0                | 1.4        | 0.80  | 15.0       | 2.500     | 4.100     | 7.800             | [0.51mm(24)]    |
|           |                |       | 120                | 135                | 20.0               |            |       |            |           |           |                   |                 |
| LVR025K   | 0.25           | 0.56  | 240                | 265                | 3.5                | 1.5        | 1.25  | 18.5       | 1.300     | 2.100     | 3.800             | [0.64mm(22)]    |
|           |                |       | 120                | 135                | 20.0               |            |       |            |           |           |                   |                 |
| LVR025S   | 0.25           | 0.56  | 240                | 265                | 3.5                | 1.5        | 1.25  | 18.5       | 1.300     | 2.100     | 3.800             | [0.64mm(22)]    |
|           |                |       | 120                | 135                | 20.0               |            |       |            |           |           |                   |                 |
| LVR033K   | 0.33           | 0.74  | 240<br>120         | 265<br>135         | 4.5                | 1.7        | 1.65  | 21.0       | 0.770     | 1.240     | 2.600             | [0.64mm(22)]    |
|           |                |       | 240                | 265                | 20.0               |            |       |            |           |           |                   |                 |
| LVR033S   | 0.33           | 0.74  | 120                | 135                | 20.0               | 1.7        | 1.65  | 21.0       | 0.770     | 1.240     | 2.600             | [0.64mm(22)]    |
|           |                |       | 240                | 265                | 5.5                |            |       |            |           |           |                   |                 |
| LVR040K   | 0.40           | 0.90  | 120                | 135                | 20.0               | 2.0        | 2.00  | 24.0       | 0.600     | 0.970     | 1.900             | [0.64mm(22)]    |
|           |                |       | 240                | 265                | 5.5                |            |       |            |           |           |                   |                 |
| LVR040S   | 0.40           | 0.90  | 120                | 135                | 20.0               | 2.0        | 2.00  | 24.0       | 0.600     | 0.970     | 1.900             | [0.64mm(22)]    |
| L) /DOEEN | 0.55           | 4.05  | 240                | 265                | 7.0                | 0.4        | 0.75  | 00.0       | 0.450     | 0.700     | 4.450             | 10.04 (00)1     |
| LVR055K   | 0.55           | 1.25  | 120                | 135                | 20.0               | 3.4        | 2.75  | 26.0       | 0.450     | 0.730     | 1.450             | [0.81mm(20)]    |
| LVR055S   | 0.55           | 1.25  | 240                | 265                | 7.0                | 3.4        | 2.75  | 26.0       | 0.450     | 0.730     | 1.450             | [0.81mm(20)]    |
| LVN0555   | 0.55           | 1.23  | 120                | 135                | 20.0               | 3.4        | 2.75  | 20.0       | 0.430     | 0.730     | 1.450             | [0.6111111(20)] |
| LVR075S   | 0.75           | 1.50  | 240                | 265                | 7.5                | 2.6        | 3.75  | 18.0       | 0.316     | 0.483     | 0.839             | [0.81mm(20)]    |
| LVR100S   | 1.00           | 2.00  | 240                | 265                | 10.0               | 2.9        | 5.00  | 21.0       | 0.218     | 0.334     | 0.580             | [0.81mm(20)]    |
| LVR125S   | 1.25           | 2.50  | 240                | 265                | 12.5               | 3.3        | 6.25  | 23.0       | 0.165     | 0.253     | 0.440             | [0.81mm(20)]    |
| LVR200S   | 2.00           | 4.00  | 240                | 265                | 20.0               | 4.5        | 10.00 | 28.0       | 0.089     | 0.131     | 0.221             | [0.81mm(20)]    |
| LVRL075S  | 0.75           | 1.52  | 120                | 135                | 7.5                | 1.8        | 3.75  | 14.0       | 0.250     | 0.400     | 0.690             | [0.81mm(20)]    |
| LVRL100S  | 1.00           | 2.00  | 120                | 135                | 10.0               | 2.2        | 5.00  | 13.6       | 0.179     | 0.269     | 0.470             | [0.81mm(20)]    |
| LVRL125S  | 1.25           | 2.50  | 120                | 135                | 12.5               | 2.0        | 6.25  | 18.0       | 0.117     | 0.179     | 0.320             | [0.81mm(20)]    |
| LVRL135S  | 1.35           | 2.70  | 120                | 135                | 13.5               | 2.8        | 6.75  | 20.0       | 0.109     | 0.167     | 0.300             | [0.81mm(20)]    |
| LVRL200S  | 2.00           | 4.20  | 120                | 135                | 20.0               | 3.9        | 10.00 | 36.0       | 0.075     | 0.117     | 0.205             | [0.81mm(20)]    |

#### Notes:

: Hold current: maximum current device will pass without interruption in 20°C still air.

: Trip current: minimum current that will switch the device from low resistance to high resistance in 20°C still air.

V<sub>MAX</sub> Operating: Maximum continuous voltage device can withstand without damage at rated current. V<sub>MAX</sub> Interrupt: Under specified conditions this is the highest voltage that can be applied to the device at the maximum interrupt current.

MAX Interrupt : Maximum fault current device can withstand without damage at rated voltage.

PD : Power dissipated from device when in the tripped state in 20°C still air.

RMIN : Minimum resistance of device as supplied at 20°C unless otherwise specified.  $\begin{array}{c} P_D \\ R_{MIN} \end{array}$ 

: Maximum resistance of device as supplied at 20°C unless otherwise specified.  $R_{MAX}$ 

: Maximum resistance of device when measured one hour post trip at 20°C unless otherwise specified.

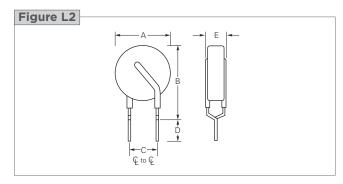
<sup>\*</sup> Electrical characteristics determined at 20°C.
† See Application Limitations on next page.

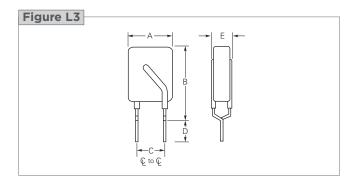


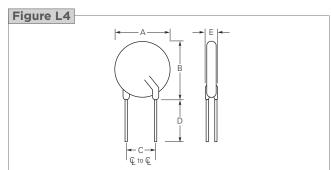
# $\sum$ Warning : Application Limitations for the LVR Product Line

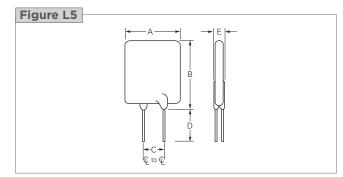
- 1) Users should independently evaluate the suitability of and test each product selected for their own application.
- 2) This product should not be used in an application where the maximum interrupt voltage or maximum interrupt current can be exceeded in a fault condition. Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- 3) A PPTC device is not a fuse it is a nonlinear thermistor that limits current. Under a fault condition all PPTC devices go into a high resistance state but do not open circuit, so hazardous voltage may be present at PPTC locations.
- 4) The devices are intended for protection against damage caused by occasional overcurrent or overtemperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- 5) In most applications power must be removed and the fault condition cleared in order to reset a PPTC device; however under certain unusual conditions, a PPTC device may automatically reset. PPTC devices should not be used in an application where an automatic reset could create a safety hazard, such as garbage disposals and blenders. Appropriate qualification testing should be performed.
- 6) It is the responsibility of the user to determine the need for back up or failsafe protection to prevent damage that may occur in the event of abnormal function or failure of the PPTC device.
- 7) Operation in circuits with a large inductance can generate a circuit voltage (Ldi/dt) above the rated voltage of a PPTC device. This product should not be used in an application where the maximum interrupt voltage or maximum interrupt current can be exceeded by inductive spikes.
- 8) Devices are not recommended for reflow soldering.
- 9) Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, or mechanical procedures for electronic components.
- 10) PPTC devices are not recommended for installation in applications where the device is constrained such that its PTC properties are inhibited, for example in rigid potting materials or in rigid housings, which lack adequate clearance to accommodate device expansion.
- 11) Contamination of the PPTC material with certain silicone-based oils or some aggressive solvents can adversely impact the performance of the devices.

# Figure L2-L5 Dimension Figures for LVR Devices











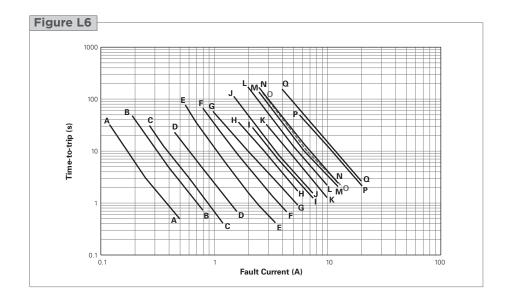
# Table L4 Dimensions for LVR Devices in Millimeters (Inches)

|             | A                | B           | C                         | D         | E                |        |
|-------------|------------------|-------------|---------------------------|-----------|------------------|--------|
| Part Number | Min. Max.        | Min. Max.   | Min. Max.                 | Min. Max. | Min. Max.        | Figure |
| .VR/LVRL    |                  |             |                           |           |                  |        |
| LVR005NK    | — 6.9            | — 12.1      | 4.3 5.8                   | 7.6 —     | — 4.6            |        |
|             | (0.27)           | (0.48)      | (0.17) (0.23)             | (0.30)    | (0.18)           | L2     |
| LVR005NS    | — 6.9            | — 9.9       | 4.3 5.8                   | 7.6 —     | — 4.6            |        |
|             | (0.27)           | (0.39)      | (0.17) (0.23)             | (0.30)    | (0.18)           | L4     |
| LVR008NK    | <del>-</del> 7.2 | — 12.4      | 4.3 5.8                   | 7.6 —     | — 4.6            |        |
|             | (0.28)           | (0.49)      | (0.17) (0.23)             | (0.30)    | (0.18)           | L2     |
| LVR008NS    | <b>—</b> 7.2     | — 10.2      | 4.3 5.8                   | 7.6 —     | — 4.6            |        |
|             | (0.28)           | (0.40)      | (0.17) (0.23)             | (0.30)    | (0.18)           | L4     |
| VR012K      | — 8.3            | — 12.9      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.33)           | (0.51)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L2     |
| _VR012S     | — 8.3            | — 10.7      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.33)           | (0.43)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L4     |
| _VR016K     | — 9.9            | — 13.8      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
| ZVIIO FOR   | (0.39)           | (0.54)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L2     |
| VR016S      | — 9.9            | — 12.5      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
| _V110103    |                  |             | (0.17) (0.23)             |           |                  | L4     |
| \/DOOF!/    | (0.39)           | (0.50)      |                           | (0.30)    | (0.15)           | L4     |
| VR025K      | — 9.6<br>(2.23)  | — 18.8      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.38)           | (0.74)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L3     |
| _VR025S     | — 9.6            | — 17.4      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.38)           | (0.69)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L5     |
| VR033K      | — 11.4           | — 19.0      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.45)           | (0.75)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L3     |
| VR033S      | — 11.4           | — 16.5      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.45)           | (0.65)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L5     |
| VR040K      | — 11.5           | — 20.9      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.46)           | (0.82)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L3     |
| VR040S      | — 11.5           | — 19.5      | 4.3 5.8                   | 7.6 —     | — 3.8            |        |
|             | (0.46)           | (0.77)      | (0.17) (0.23)             | (0.30)    | (0.15)           | L5     |
| _VR055K     | — 14.0           | — 22.4      | 4.3 5.8                   | 7.6 —     | <del>-</del> 4.1 |        |
|             | (0.55)           | (0.88)      | (0.17) (0.23)             | (0.30)    | (0.16)           | L3     |
| _VR055S     | — 14.0           | — 21.7      | 4.3 5.8                   | 7.6 —     | — 4.1            |        |
|             | (0.55)           | (0.85)      | (0.17) (0.23)             | (0.30)    | (0.16)           | L5     |
| _VR075S     | — 11.5           | — 23.4      | 4.1 6.1                   | 5.1 —     | — 4.8            |        |
| _V110755    | (0.45)           | (0.92)      |                           | (0.20)    | (0.19)           | L5     |
| \/P100C     | — 18.7           | — 24.4      | (0.16) (0.24)<br>8.9 11.4 | 5.1 —     | — 5.1            | LU     |
| _VR100S     |                  |             |                           |           |                  |        |
| \/D4050     | (0.74)           | (0.96)      | (0.35) (0.45)             | (0.20)    | (0.20)           | L4     |
| _VR125S     | — 21.2           | — 27.4      | 8.9 11.4                  | 5.1 —     | — 5.3            |        |
|             | (0.84)           | (1.08)      | (0.35) (0.45)             | (0.20)    | (0.21)           | L4     |
| _VR200S     | — 24.9           | — 33.8      | 8.9 11.4                  | 5.1 —     | — 6.1            |        |
|             | (0.98)           | (1.33)      | (0.35) (0.45)             | (0.20)    | (0.24)           | L5     |
| VRL075S     | — 10.9           | <del></del> | 4.3 5.8                   | 7.6 —     | <b>—</b> 4.1     |        |
|             | (0.43)           | (0.67)      | (0.17) (0.23)             | (0.30)    | (0.16)           | L5     |
| LVRL100S    | — 11.5           | — 20.1      | 4.3 5.8                   | 7.6 —     | — 4.1            |        |
|             | (0.45)           | (0.79)      | (0.17) (0.23)             | (0.30)    | (0.16)           | L5     |
| VRL125S     | — 14.0           | — 21.7      | 4.3 5.8                   | 7.6 —     | — 4.1            |        |
|             | (0.55)           | (0.85)      | (0.17) (0.23)             | (0.30)    | (0.16)           | L5     |
| VRL135S     | — 16.3           | — 21.7      | 4.3 5.8                   | 7.6 —     | — 4.1            |        |
|             | (0.64)           | (0.85)      | (0.17) (0.23)             | (0.30)    | (0.16)           | L5     |
| VRL200S     | — 23.5           | — 31.8      | 9.4 10.9                  | 7.6 —     | — 4.1            | LO     |
|             | — ZJ.J           | - 01.0      | J.+ 1U.3                  | / . U —   | - 4.1            |        |

# Figure L6 Typical Time-to-trip curves at 20°C for LVR Devices

#### LVR/LVRL

H = LVR055 I = LVRL075 J = LVR075



# Table L5 Physical Characteristics and Environmental Specifications for LVR Devices

| LVR/LVRL                       |                 |  |
|--------------------------------|-----------------|--|
| <b>Physical Characteristic</b> | cs              |  |
| Lead material                  | LVR005N-016     | 5 : Tin-plated copper, (24AWG), ø0.51mm (0.020in.)                               |
|                                | LVR025-040      | :Tin-plated copper, (22AWG), ø0.64mm (0.025in.)                                  |
|                                | LVR055-200      | :Tin-plated copper, (20AWG), ø0.81mm (0.032in.)                                  |
|                                | LVRL            | :Tin-plated copper, (20AWG), ø0.81mm (0.032in.)                                  |
| Soldering characteristics      | Solderability p | per ANSI/J-STD-002 Category 3  |
| Solder heat withstand          | Per IEC-STD (   | 68-2-20, Test Tb, Method 1A, Condition B, can withstand 10 seconds at 260°C ±5°C |
| Insulating material            | LVR005N-055     | 5 : Cured, flame-retardant epoxy polymer, meets UL 94V-0                         |
|                                | LVR075-200      | : Cured, flame-retardant modified silicone, meets UL 94V-0                       |
|                                | LVRL            | : Cured, flame-retardant epoxy polymer, meets UL 94V-0                           |

Note: Devices are not designed to be placed through a reflow process.

| Environmental Specifications |                          |                   |  |  |  |  |
|------------------------------|--------------------------|-------------------|--|--|--|--|
| Test                         | Conditions               | Resistance Change |  |  |  |  |
| Passive aging                | 70°C, 1000 hours         | ±10%              |  |  |  |  |
|                              | 85°C, 1000 hours         | ±10%              |  |  |  |  |
| Humidity aging               | 85°C, 85%RH, 1000 hours  | ±20%              |  |  |  |  |
| Thermal shock                | 85°C, -40°C (10 times)   | ±15%              |  |  |  |  |
| Solvent resistance           | MIL-STD-202, Method 215F | No change         |  |  |  |  |

# **Agency Recognitions for LVR Devices**

| UL  | File # E74889  |
|-----|--|
| CSA | File # CA78165   |
| TÜV | Certificate number available on request (per IEC 60730-1). |



# Table L6 Packaging and Marking Information for LVR Devices

| Part Number | Bag<br>Quantity | Tape & Reel<br>Quantity | Ammo Pack<br>Quantity | Standard Package<br>Quantity | Part Marking | Agency Recognition |
|-------------|-----------------|-------------------------|-----------------------|------------------------------|--------------|--------------------|
| LVR/LVRL    |                 |                         |                       |                              |              |                    |
| LVR005NK    | 500             | _                       | _                     | 10,000                       | L005         | UL,CSA, TÜV        |
| LVR005NK-2  | _               | 1,500                   | _                     | 7,500                        | L005         | UL,CSA, TÜV        |
| _VR005NS    | 500             | _                       | _                     | 10,000                       | L005         | UL,CSA, TÜV        |
| LVR005NS-2  | _               | 1,500                   | _                     | 7,500                        | L005         | UL,CSA, TÜV        |
| LVR008NK    | 500             | _                       | _                     | 10,000                       | L008         | UL,CSA, TÜV        |
| _VR008NK-2  | _               | 1,500                   | _                     | 7,500                        | L008         | UL,CSA, TÜV        |
| _VR008NS    | 500             | _                       | _                     | 10,000                       | L008         | UL,CSA, TÜV        |
| VR008NS-2   | _               | 1,500                   | _                     | 7,500                        | L008         | UL,CSA, TÜV        |
| VR012K      | 500             | _                       | _                     | 10,000                       | L012         | UL,CSA, TÜV        |
| VR012K-2    | _               | 2,000                   | _                     | 10,000                       | L012         | UL,CSA, TÜV        |
| LVR012S     | 500             | _                       | _                     | 10,000                       | L012         | UL,CSA, TÜV        |
| LVR012S-2   | _               | 2,000                   | _                     | 10,000                       | L012         | UL,CSA, TÜV        |
| _VR016K     | 500             | _                       | _                     | 10,000                       | L016         | UL,CSA, TÜV        |
| _VR016K-2   | _               | 2,000                   | _                     | 10,000                       | L016         | UL,CSA, TÜV        |
| VR016S      | 500             | _                       | _                     | 10,000                       | L016         | UL,CSA, TÜV        |
| _VR016S-2   | _               | 2,000                   | _                     | 10,000                       | L016         | UL,CSA, TÜV        |
| VR025K      | 500             | _                       | _                     | 10,000                       | L025         | UL,CSA, TÜV        |
| VR025K-2    | _               | 2,000                   | _                     | 10,000                       | L025         | UL,CSA, TÜV        |
| VR025S      | 500             | _                       | _                     | 10,000                       | L025         | UL,CSA, TÜV        |
| VR025S-2    | _               | 2,000                   | _                     | 10,000                       | L025         | UL,CSA, TÜV        |
| LVR033K     | 500             | _                       | _                     | 10,000                       | L033         | UL,CSA, TÜV        |
| _VR033K-2   | _               | 2,000                   | _                     | 10,000                       | L033         | UL,CSA, TÜV        |
| LVR033S     | 500             | _                       | _                     | 10,000                       | L033         | UL,CSA, TÜV        |
| _VR033S-2   | _               | 2,000                   | _                     | 10,000                       | L033         | UL,CSA, TÜV        |
| _VR040K     | 500             | _                       | _                     | 10,000                       | L040         | UL,CSA, TÜV        |
| _VR040K-2   | _               | 2,000                   | -                     | 10,000                       | L040         | UL,CSA, TÜV        |
| LVR040S     | 500             | _                       | -                     | 10,000                       | L040         | UL,CSA, TÜV        |
| _VR040S-2   | _               | 2,000                   | -                     | 10,000                       | L040         | UL,CSA, TÜV        |
| _VR055K     | 500             | _                       | -                     | 10,000                       | L055         | UL,CSA, TÜV        |
| VR055S      | 500             | _                       | -                     | 10,000                       | L055         | UL,CSA, TÜV        |
| VR055S-2    | _               | 1,000                   | -                     | 5,000                        | L055         | UL,CSA, TÜV        |
| VR075S      | 500             | _                       | -                     | 10,000                       | L075         | UL,CSA, TÜV        |
| VR100S      | 250             | _                       | -                     | 5,000                        | L100         | UL,CSA, TÜV        |
| VR125S      | 250             | _                       | -                     | 5,000                        | L125         | UL,CSA, TÜV        |
| VR200S      | 250             | _                       | _                     | 5,000                        | L200         | UL,CSA, TÜV        |
| VRL075S     | 500             | _                       | _                     | 10,000                       | L075         | UL,CSA, TÜV        |
| VRL100S     | 500             | _                       | _                     | 10,000                       | L100         | UL,CSA, TÜV        |
| LVRL125S    | 500             | _                       | -                     | 10,000                       | L125         | UL,CSA, TÜV        |
| VRL135S     | 500             | _                       | -                     | 10,000                       | L135         | UL,CSA, TÜV        |
| LVRL200S    | 250             | _                       | _                     | 5,000                        | L200         | UL,CSA, TÜV        |



# Table L7 Tape and Reel Specifications for LVR Devices

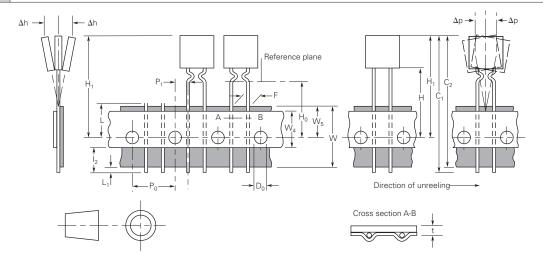
LVR devices are available in tape and reel packaging per EIA468-B/IEC60286-2 standards. See Figures L7 and L8 for details.

| arrier tape width W4  old-down tape width W4  old-down tape width W4  op distance between tape edges W6  orrocket hole position W5  orrocket hole position W6  orrocket hole diameter D0  oscissa to plane (straight lead) (LVR005N to LVR016) H1  oscissa to plane (kinked lead) (LVR005N to LVR016) H2  oscissa to top (LVR005N to LVR016) H1  oscissa to top* (LVR005N to LVR016) H1  oscissa to top* (LVR005S to LVR055) H1  overall width with lead protrusion (LVR005N to LVR016) C1  overall width with lead protrusion (LVR005N to LVR016) C2  overall width without lead protrusion (LVR005N to LVR016) C2  overall width without lead protrusion (LVR005N to LVR016) C2  overall width without lead protrusion (LVR005N to LVR055) C2  overall width without lead protrusion (LVR005N to LVR055) C2  overall width without lead protrusion (LVR005N to LVR055) C2  overall width without lead protrusion (LVR005N to LVR055) C2  overall width without lead protrusion (LVR005N to LVR055) C2  overall width without lead protrusion (LVR005N to LVR055) C3  overall width without lead protrusion (LVR005N to LVR055) C4  to trusion of cut-out L1  otrusion beyond hold-down tape  lg  orrocket hole pitch  P0  evice pitch (LVR005N to LVR040)  cvere pitch (LVR005N to LVR040)  t1  overall tape and lead thickness (LVR005N to LVR040)  t1  overall tape and lead thickness (LVR055)  t1  olice sprocket hole alignment   | Dimension (mm) | Tolerance  |
|--|----------------|------------|
| op distance between tape edges         W <sub>6</sub> procket hole position         W <sub>5</sub> procket hole diameter         D <sub>0</sub> position         H           position         L  | 18             | -0.5/+1.0  |
| Docket hole position   Wis procket hole position   Wis procket hole diameter   Do position   Docket hole diameter   Do position   Docket hole diameter   Docket hole position   Helphoposition   Helphoposition   Helphoposition   Helphoposition   Helphoposition   Helphoposition   Helphoposition   Helphoposition   Helphoposition   LVR005N to LVR016  | 11             | Minimum    |
| brocket hole diameter         D₀           boscissa to plane (straight lead) (LVR005N to LVR016)         H           boscissa to plane (kinked lead) (LVR005N to LVR016)         H₀           boscissa to top (LVR005N to LVR016)         H₁           boscissa to top* (LVR005N to LVR016)         H₁           boscissa to top* (LVR025 to LVR055)         H₁           verall width with lead protrusion (LVR005N to LVR016)         C₁           verall width with lead protrusion (LVR025 to LVR055)         C₁           verall width without lead protrusion (LVR025 to LVR055)         C₂           verall width without lead protrusion (LVR025 to LVR055)         C₂           verall width without lead protrusion (LVR025 to LVR055)         C₂           verall width without lead protrusion (LVR025 to LVR055)         C₂           verall width without lead protrusion (LVR025 to LVR055)         C₂           verall width without lead protrusion (LVR040)         -           verall width without lead protrusion (LVR040)         -           verall width without lead protrusion (LVR055)         -           to the plane deviation (LVR055)         to the plane deviation (LVR055)           verall tape and lead thickness (LVR055)         t1           verall tape and lead thickness (LVR055)         t1           verall tape and lead thickness (LVR055)         t  | 3              | Maximum    |
| Hospital   | 9              | -0.5/+0.75 |
| Ho   Descissa to plane (kinked lead) (LVR005N to LVR016)   H1  | 4              | ± 0.2      |
| H <sub>1</sub>   Descissa to top (LVR005N to LVR016)   H <sub>1</sub>   Descissa to top* (LVR025 to LVR055)   H <sub>1</sub>   Descissa to top* (LVR025 to LVR055)   H <sub>1</sub>   Descissa to top* (LVR025 to LVR055)   C <sub>1</sub>   Descissa to top* (LVR025 to LVR055)   C <sub>2</sub>   Descissa to top* (LVR025 to LVR055)   C <sub>3</sub>   Descissa to top* (LVR025 to LVR055)   C <sub>4</sub>   Descissa to top* (LVR005N to LVR016)   C <sub>5</sub>   Descissa to top* (LVR055)   C <sub>6</sub>   Descissa to top* (LVR055)   C <sub>7</sub>   Descissa to top* (LVR055)   C <sub>8</sub>   Descissa to top* (LVR055)   C <sub>9</sub>   Descissa to top* (LVR055)   Descissa to top* (LVR05  | 18.5           | ± 2.5      |
| H <sub>1</sub>   | 16.0           | ± 0.5      |
| everall width with lead protrusion (LVR005N to LVR016)         C1           everall width with lead protrusion (LVR005 to LVR055)         C1           everall width without lead protrusion (LVR005N to LVR016)         C2           everall width without lead protrusion (LVR025 to LVR055)         C2           ead protrusion         L1           ead protrusion of cut-out         L           corocket hole pitch         P0           everice pitch (LVR005N to LVR040)         —           everice pitch (LVR055)         —           toth tolerance         —           everall tape and lead thickness (LVR055)         t1           verall tape and lead thickness (LVR055)         t1           obicice sprocket hole alignment         —           ody lateral deviation         Δh           ody tape plane deviation         Δp           ordinate to adjacent component lead         P1           ead spacing*         F           eel width (LVR005N to LVR040)         w2           eel width* (LVR005N to LVR040)         w1           ever between flanges* (LVR055)         w1           ever between flanges* (LVR055)         w1           ever diameter*         a           ore diameter*         c           ore diameter*   | 32.2           | Maximum    |
| everall width with lead protrusion (LVR025 to LVR055)         C1           everall width without lead protrusion (LVR025 to LVR055)         C2           everall width without lead protrusion (LVR025 to LVR055)         C2           ead protrusion         L1           fortusion of cut-out         L           correcket hole pitch         P0           evice pitch (LVR005N to LVR040)         —           evice pitch (LVR055)         —           tch tolerance         —           eper thickness         t           total tape and lead thickness (LVR005N to LVR040)         t1           verall tape and lead thickness (LVR055)         t1           oblice sprocket hole alignment         —           ody lateral deviation         Ah           ody tape plane deviation         Ap           refinate to adjacent component lead         P1           ead spacing*         F           eel width (LVR055)         w2           eel width (LVR055)         w2           eel width (LVR055)         w2           eel width (LVR055)         w1           obc between flanges* (LVR055)         w1           obc de diameter         c           ore diameter*         n           ore diameter*         <   | 45.0           | Maximum    |
| everall width without lead protrusion (LVR005N to LVR055)         C₂           everall width without lead protrusion (LVR025 to LVR055)         C₂           ead protrusion         L₁           otrusion of cut-out         L           otrusion beyond hold-down tape         I₂           procket hole pitch         P₀           evice pitch (LVR005N to LVR040)         —           evice pitch (LVR055)         —           tch tolerance         —           spe thickness         t           verall tape and lead thickness (LVR005N to LVR040)         t₁           verall tape and lead thickness (LVR055)         t₁           olice sprocket hole alignment         —           ody lateral deviation         Δp           ody tape plane deviation         Δp           ody tape plane deviation         Δp           reflect width (LVR005N to LVR040)         w₂           peel width (LVR005N to LVR040)         w₂           peel width* (LVR005N to LVR040)         w₁           peel diameter         a           pace between flanges* (LVR055)         w₁           prote diameter*         c           pore diameter*         n           pore diameter*         n  | 43.2           | Maximum    |
| everall width without lead protrusion (LVR025 to LVR055)         C2           ead protrusion         L1           rotrusion of cut-out         L           correcket hole pitch         P0           evice pitch (LVR005N to LVR040)         —           evice pitch (LVR005N)         —           evice pitch (LVR005S)         —           tch tolerance         —           everall tape and lead thickness (LVR005N to LVR040)         t1           everall tape and lead thickness (LVR005S)         t1           police sprocket hole alignment         —           poly lateral deviation         Δh           pody tape plane deviation         Δp           refundate to adjacent component lead         P1           each spacing*         F           evel width (LVR005N to LVR040)         w2           evel width* (LVR055)         w2           evel diameter         a           pace between flanges* (LVR005N to LVR040)         w1           pace between flanges* (LVR055)         w1           poor ediameter*         n           poor ediameter         n   | 56.0           | Maximum    |
| table protrusion  L1  rotrusion of cut-out  L  rotrusion beyond hold-down tape  l2  procket hole pitch  evice pitch (LVR005N to LVR040)  evice pitch (LVR055)   tch tolerance  ppe thickness  t  verall tape and lead thickness (LVR005N to LVR040)  tape and lead thickness (LVR055)  tolice sprocket hole alignment  pody lateral deviation  Ab  add spacing*  evel width (LVR055)  we all spacing are to appear to a pace between flanges* (LVR005N to LVR040)  which is a pace between flanges* (LVR005N to LVR040)  we are conceptions are to appear to a pace between flanges* (LVR055)  who hold diameter  c c pre diameter*  n pox   | 42.5           | Maximum    |
| Totrusion of cut-out  L Totrusion beyond hold-down tape  I2 Drocket hole pitch P0 evice pitch (LVR005N to LVR040)  Evice pitch (LVR055)  Evice pitch (LVR0   | 56.0           | Maximum    |
| rotrusion beyond hold-down tape  I2  procket hole pitch P0 evice pitch (LVR005N to LVR040) — evice pitch (LVR005S) — tch tolerance — ppe thickness t verall tape and lead thickness (LVR005N to LVR040)  t1  verall tape and lead thickness (LVR005S)  t1  police sprocket hole alignment — pody lateral deviation  Δh  pody tape plane deviation  Δp  rdinate to adjacent component lead P1 ead spacing* F eel width (LVR005N to LVR040)  w2 eel width* (LVR005N to LVR040)  w2 eel diameter a pace between flanges* (LVR005N to LVR040)  w1 porce diameter  c c pre diameter* n pox  —  **Control of the pitch of the pit   | 1.0            | Maximum    |
| procket hole pitch P <sub>0</sub> evice pitch (LVR005N to LVR040) — evice pitch (LVR055) — tch tolerance — ppe thickness t verall tape and lead thickness (LVR005N to LVR040) t <sub>1</sub> evicell tape and lead thickness (LVR055) t <sub>1</sub> colice sprocket hole alignment — cody lateral deviation Δh cody tape plane deviation Δp rdinate to adjacent component lead P <sub>1</sub> eval spacing* F evel width (LVR005N to LVR040) w <sub>2</sub> evel width* (LVR005N to LVR040) w <sub>2</sub> evel width* (LVR005N to LVR040) w <sub>3</sub> evel diameter a coace between flanges* (LVR055) w <sub>1</sub> cobor hold diameter c core diameter* n cox —   | 11.0           | Maximum    |
| evice pitch (LVR005N to LVR040) — evice pitch (LVR055) — tch tolerance — spe thickness t verall tape and lead thickness (LVR005N to LVR040) t1 evicell tape and lead thickness (LVR005N to LVR040) t1 evicell tape and lead thickness (LVR055) t1 evicell tape and lead thickness (LVR055) t1 evicell tape and lead thickness (LVR055) t2 evicel tape and lead tape and   | Not specified  |            |
| revice pitch (LVR055) — tch tolerance — tpe thickness t t verall tape and lead thickness (LVR005N to LVR040) t1 verall tape and lead thickness (LVR005S) t1 police sprocket hole alignment — tody lateral deviation Δh tody tape plane deviation Δp rdinate to adjacent component lead P1 sead spacing* F tele width (LVR005N to LVR040) w2 tele width* (LVR005N to LVR040) w2 tele diameter a totace between flanges* (LVR005N to LVR040) w1 totace between flanges* (LVR055) w1 totace diameter core diameter* cor  | 12.7           | ± 0.3      |
| tch tolerance ————————————————————————————————————   | 12.7           | ± 0.3      |
| t verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR0055)  to verall tape and lead thickness (LVR055)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR005N to LVR040)  to verall tape and lead thickness (LVR055)  to verall tape and lead tale tap   | 25.4           | ± 0.6      |
| verall tape and lead thickness (LVR005N to LVR040)  verall tape and lead thickness (LVR0055)  t1  verall tape and lead thickness (LVR055)  t1  olice sprocket hole alignment  —  ody lateral deviation  Δp  rdinate to adjacent component lead  P1  ead spacing*  Felel width (LVR005N to LVR040)  w2  eel width* (LVR055)  w2  eel diameter  a cace between flanges* (LVR005N to LVR040)  w1  chor hold diameter  c c  ore diameter*  n  ox  —   t1  t2  t3  t4  table  | 20 consecutive | ± 1        |
| verall tape and lead thickness (LVR055)  t1  blice sprocket hole alignment  body lateral deviation  Δh  body tape plane deviation  Ap  rdinate to adjacent component lead  P1  ead spacing*  Felel width (LVR005N to LVR040)  w2  eel width* (LVR055)  w2  eel diameter  a cace between flanges* (LVR005N to LVR040)  w1  book  chor hold diameter  core diameter*  n  cox  —  | 0.9            | Maximum    |
| Dice sprocket hole alignment  Dody lateral deviation  Ah  Dody tape plane deviation  Ap  Indinate to adjacent component lead  P1  Bead spacing*  Fellel width (LVR005N to LVR040)  W2  Beal width* (LVR055)  W2  Beal diameter  Beal diameter  Bean Doace between flanges* (LVR005N to LVR040)  W1  Brook hold diameter  Core diameter*  Dock  | 1.5            | Maximum    |
| body lateral deviation         Δh           body tape plane deviation         Δp           redinate to adjacent component lead         P1           ead spacing*         F           eel width (LVR005N to LVR040)         w2           eel width* (LVR055)         w2           eel diameter         a           bace between flanges* (LVR005N to LVR040)         w1           bace between flanges* (LVR055)         w1           chor hold diameter         c           brown         —  | 2.3            | Maximum    |
| ody tape plane deviation         Δp           rdinate to adjacent component lead         P1           ead spacing*         F           eel width (LVR005N to LVR040)         w2           eel width* (LVR055)         w2           eel diameter         a           pace between flanges* (LVR005N to LVR040)         w1           pace between flanges* (LVR055)         w1           probability of the diameter         c           probability of the diameter         c           probability of the diameter         n           probability of the diameter   | 0              | ± 0.3      |
| rdinate to adjacent component lead P <sub>1</sub> and spacing* F seel width (LVR005N to LVR040) w <sub>2</sub> seel width* (LVR055) w <sub>2</sub> seel diameter a space between flanges* (LVR005N to LVR040) w <sub>1</sub> space between flanges* (LVR055) w <sub>1</sub> space between flanges* (LVR055) w <sub>2</sub> special diameter a space between flanges* (LVR055) w <sub>3</sub> space between flanges* (LVR055) w <sub>4</sub> space between flanges* (LVR055) w <sub>4</sub> space diameter a space between flanges a space betwee   | 0              | ± 1.0      |
| gead spacing*         F           geel width (LVR005N to LVR040)         w2           geel width* (LVR055)         w2           geel diameter         a           gace between flanges* (LVR005N to LVR040)         w1           gace between flanges* (LVR055)         w1           grow diameter         c           grow diameter*         n           good         —   | 0              | ± 1.3      |
| weel width (LVR005N to LVR040)   w2  | 3.81           | ± 0.7      |
| geel width* (LVR055)         w2           geel diameter         a           pace between flanges* (LVR005N to LVR040)         w1           pace between flanges* (LVR055)         w1           prob rhold diameter         c           pre diameter*         n           pox         —   | 5.08           | +0.75/-0.5 |
| beel diameter a a bace between flanges* (LVR005N to LVR040) w <sub>1</sub> bace between flanges* (LVR055) w <sub>1</sub> bace between flanges* (LVR055) m <sub>2</sub> bace between flanges* (LVR055) m <sub>3</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>5</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>5</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>5</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>5</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>5</sub> bace between flanges* (LVR055) m <sub>4</sub> bace between flanges* (LVR055) m <sub>5</sub> bace between flanges* (LVR055) m <sub>4</sub> b | 56.0           | Maximum    |
| bace between flanges* (LVR005N to LVR040)  bace between flanges* (LVR055)  w1  rbor hold diameter  c  pre diameter*  n   | 63.5           | Maximum    |
| paace between flanges* (LVR055) w <sub>1</sub> rbor hold diameter c  ore diameter* n  ox —   | 370.0          | Maximum    |
| rbor hold diameter c ore diameter* n ox —  | 48.0           | Maximum    |
| ore diameter* n  | 55.0           | Maximum    |
| ox —   | 26.0           | ± 12.0     |
|  | 91.0           | Maximum    |
|  | 64/372/362     | Maximum    |
| onsecutive missing places — — — — — — — — — — — — — — — — — — —  | None           |            |
| mpty places per reel —   | 0.1%           | Maximum    |

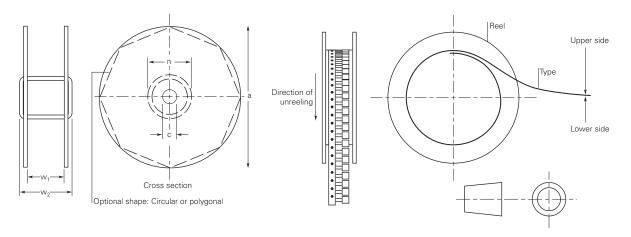
<sup>\*</sup>Differs from EIA specification.



# Figure L7 EIA Referenced Taped Component Dimensions for LVR Devices



#### Figure L8 EIA Referenced Reel Dimensions for LVR Devices



## **Part Numbering System for LVR Devices**

